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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/311,718	05/14/1999	JANG-KUN SONG	06192.0085	1612

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EXAMINER

NGUYEN, DUNG T

ART UNIT PAPER NUMBER

2871

DATE MAILED: 07/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
09/311,718

Applicant(s)
Song et al.

Examiner
Dung Nguyen

Art Unit
2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Apr 17, 2003.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-77 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 13-16, 23-26, 28, 29, 31-34, 41-43, and 59-77 is/are allowed.
- 6) ☒ Claim(s) 1-12, 17-22, 27, 30, 35-40, and 44-58 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ 6) ☐ Other:

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Response to Amendment

Applicant's amendment dated 04/17/2003 has been received and entered.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 59 recites the limitation "the fast" in line 7. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1, 4-12, 17-22, 27, 30, 35-40 and 44-51 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Koike et al., US Patent No. 5,473,455, in view of Koma, US Patent No. 5,608,556, as stated in the previous office action.

Regarding claims 1, 22, 27, 30, 35-36 and 47-51, in response to applicant's argument that there is no suggestion to combine the references (amendment, page 20), the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of

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ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In particular, Applicants contend that the Koike's liquid crystal controlling power generated by a protrusion (26p) and depression (22d) based on the geometric structure of a protrusion and a depression (amendment, page 20), while the Koma's liquid crystal is controlled just based on the electric field and does not disclose any geometric structure (amendment, page 21). The examiner respectfully disagrees with the applicant's viewpoint and respectfully invited the applicant to review the Koma reference (figure 8 and accompanying text) in which liquid crystal molecules (40) are controlled by an aperture (33b) when applying a voltage on the Koma's device. In other words, the combination of Koike and Koma would employ the claimed invention.

Accordingly, the rejection of the above claims stand.

5. Claims 2-3 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Koike et al., US Patent No. 5,473,455 in view of Koma, US Patent No. 5,608,556, further in view of Bos et al., US Patent 6,141,074, as stated in the previous office action.

Regarding claims 2-3, the modification to Koike et al. do disclose the protrusions and the apertures as stated above; therefore the limitation of "the chiral nematic liquid crystal layer having a negative dielectric anisotropy" would have been obvious at least in view of Bos et al. .

Accordingly, the rejection of claims 2-3 stand.

6. Claims 52-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koma, US Patent No. 6,407,794, in view of Tokuo, JP 7-311383.

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Regarding the above claims, Koma disclose an LCD device (figures 6-7) comprising:

- a first substrate (10) with a first electrode (19) having first apertures (19d, 19e) thereon; wherein each of the first apertures has a branch extending along an edge of the first electrode and toward to an end of the second apertures to make an acute angle with the edge of the aperture (see figure 6);

- a second substrate (30) with a second electrode (31) having second apertures (32a, 32b, 32c) thereon; wherein each of the second apertures is oblique to the edge of the first electrode and the end of the second aperture located near the edge of the first electrode (see figure 6);

- a liquid crystal layer (40).

The difference between the claims and Koma reference is that the first electrode having a protrusion instead of the first aperture. Tokuo does disclose an aperture formed on a substrate (figure 17) can be replaced by a protrusion (figure 11). Therefore, it would have been obvious to one skilled in the art at the time of the invention was made to form a protrusion instead of the first aperture as shown by Tokuo, since the selection of forming apertures or depresses portion on electrodes would be within the level of ordinary skill in the art to improve a wide viewing angle (see abstract).

Allowable Subject Matter

7. Claims 13-16, 23-26, 28-29, 31-34, 41-43 and 59-77 are allowed.

8. The following is a statement of reasons for the indication of allowable subject matter:

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The references of record neither disclose nor make obvious a liquid crystal display device comprising a plurality of protrusions formed on a common electrode, wherein the protrusion has a first branch extending along an edge of a pixel electrode from a position at which an aperture formed on the pixel electrode meets the edge of the pixel electrode with an acute angle (claim 13), the shape of the protrusion is a tetragon surrounding the X shaped aperture (claims 23 and 31), the protrusion is located substantially outside edges of the pixel electrode (claim 33), and a portion of the protrusion overlaps edges of the pixel electrode (claim 34); wherein either a first and the second protrusions or imaginary extensions of the first and the second protrusions meet each other (claim 59); a black matrix on a second substrate including a first portion overlapping the protrusion, a second portion passing through bent points of the protrusion the aperture and a third portion covering a region where the protrusion and the aperture meet a boundary of the pixel electrode (claim 41).

Conclusion

9.. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period


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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Dung Nguyen whose telephone number is (703) 305-0423. The fax phone number for this Group is (703) 308-7722.

If attempts to reach the Examiner by telephone are unsuccessful, The Examiner's supervisor, Robert H. Kim can be reached on 703-305-3492. The fax phone numbers for the organization where this application or proceeding is assigned are 703-746-7730 for regular communications and 703-308-7726 for After Final communications.

Any inquiry of a general nature or relating to the status of this application should be directed to the group receptionist whose telephone number is (703) 308-0956.


ROBERT H. KIM
SUPERVISOR, EXAMINER
TECHNICAL CENTER 2800

DN
06/18/2003